

REMARKS

The following Remarks are in timely Reply to the Final Office Action dated October 6, 2004 with a three month extension, accompanied by a request for continued examination. Applicants have amended Claims 1-4, 6-9, 11, 14, 16, 24, 41 and 49, and cancelled Claims 10, 17-23. Claims 1-4, 6-9, 11, 14-16, 24-25, 27-33, 35-42, 44-53 and 55-59 are pending in this Application for reconsideration and further examination. Claims 1, 11, 24, 41 and 49 are independent. Applicants respectfully request reconsideration and further examination of this Application.

35 USC § 103 (a)

In paragraph 2, page 2 of the Office Action, the Examiner rejected Claims 1-10, 14-17, 19-25, 27-32, 38-42, 46-53 and 55-58 under 35 U.S.C. 103 (a) as being anticipated by Larky et al. (U.S. Pat. 6,389,495) ("Larky") in view of Hansen et al. (Pub No US20020057682) stating, in pertinent part:

"As per *claim 1*, Larky discloses USB host system operationally coupled to a computing system with a main processor, comprising:

a first processor (fig. 1,126) that implements a USB driver without using the main processor(fig.1, 116) resources;(col. 4, lines 26-44)

a downstream USB port;(fig.1,106)

a communication area accessible both by the main processor and by the first processor such that the first processor interfaces with the main processor via the communication area using predefined records in predefined format(col.7, lines 21-67)

wherein the main processor writes a data transfer request in the communication area in a predefined record format and the first processor schedules and completes the request via a USB host controller.(col. 4, lines 1-44)

Larky discloses all the limitations as above except a first processor that implements a host controller driver without using the main processor resources. However, Hansen discloses by dividing the functionality of device into logical interface, replacement of either of the external interfaces is enabled without impacting the host PC 400 drivers or firmware architecture.[0031][0025-0026]

It would have been obvious to one having ordinary skills in the art at the time the invention was made to incorporate Hansen's teaching into Larky's system so as to improve systems that allow for different communications network to be interfaced through a single peripheral device.[0009] [OFFICE ACTION, SECTION 2, PAGES 2-3]

In light of the Remarks that follow, this rejection is respectfully traversed.

Claim 1:

Larky does not teach or even suggest the limitations of independent Claim 1. Larky does not teach an embedded computing system with a main processor; and a USB host system comprising of a first processor that implements a USB driver and a USB host controller driver for processing USB transfers initiated by an application program running on the main

processor, and the first processor presents a high level interface to the application program, wherein the USB host system interfaces with the main processor using a standard microprocessor bus interface and the main processor does not have to run the USB driver and the USB host controller driver; a downstream USB port; and a communication area directly accessible by both the main processor and the first processor such that the first processor interfaces with the main processor via the communication area using predefined records in pre-defined formats, wherein the main processor writes a data transfer request in the communication area in a pre-defined record format, and wherein the first processor schedules and completes the request via a USB host controller.

Larky does not disclose an embedded computing system with a **USB host system** of the present invention, and instead discusses a USB dedicated circuit that is located in a peripheral device. This is shown in Figure 1 of Larky where the USB dedicated circuit 124 is a part of a device controller 104 and located in peripheral device 101. This is different than the USB host system of the present invention.

Applicants would like to direct the Examiner's attention to Figure 3 of the present application. In Figure 3, the USB host system 300 is coupled to main processor 310 and the USB devices 320 are coupled to USB host system. Larky's device 101 is one of the USB devices 320 each having the USB dedicated circuit 124 and is not the USB host system 300 (or 200).

Applicants also direct the Examiner's attention to Figure 2 of the present application. In Figure 2, the USB host system 200 has a processor 210, which is the first processor of Claim 1. Processor 210 runs the **USB driver and a host controller driver**. This USB/host controller driver is run on the host side and not on the peripheral side (for example, in device 101(Figure 1 of Larky)). Based on the foregoing, Larky's processor 126 (Figure 1) as cited by the Examiner is different from the first processor 210 (Figure 2) of the present invention. Larky's processor 126 is located in the peripheral device 101 and is not a part of a **USB host system** as shown in Figure 2 and 3 of the present application. Processor 126 in Larky is a part of a USB dedicated circuit 124 that is located at the opposite end of the architecture (i.e. on the peripheral side) compared to the first processor 210 of the present invention, which is located on the host side.

First, there is no suggestion or motivation to combine Hansen with Larky. Second, assuming arguendo, that Larky and Hansen can be combined, Hansen does not add anything to the deficiency of Larky. Hansen discloses "a USB device" that "has distinct and dedicated external

interfaces for providing multi-functionality capabilities. The host PC coordinates device interfacing through separate interface drivers associated with the USB device external interfaces. Future replacement of either external interface functionality is allowed without effecting the host PC driver or firmware architecture”. (Hansen, Abstract).

Hansen divides the functionality of a peripheral device 450 into three logical interfaces. These interfaces may be replaced without impacting the host PC 400 drivers or firmware. This allows Hansen to add other devices without changing host PC drivers. This however, is not related to a USB host system of the present invention with a dedicated processor to run the USB driver and USB host controller driver. In Hansen, as shown in Figure 2, the standard USB architecture for the USB driver and the USB host controller driver is followed, i.e., the PC runs the USB driver and the USB host controller driver.

In light of the amendment, it is respectfully submitted that the Examiner’s rejection of Claims 1 under 35 U.S.C. 103(a) in view of Larky and Hansen be withdrawn.

Claims 2-4 and 6-9:

Claims 2-4 and 6-9 depend from Claim 1 and are patentable over Larky and Hansen for at least the foregoing reasons with respect to Claim 1. Therefore, it is respectfully submitted that the Examiner’s rejection of Claims 2-4, 6-9 under 35 U.S.C. 103(a) in view of Larky and Hansen is untenable and must be withdrawn.

Claim 11:

Claim 11 is patentable over Larky and Hansen for at least the same reasons given above with respect to Claim 1. Therefore, it is respectfully submitted that the Examiner’s rejection of Claim 11 under 35 U.S.C. 103(a) in view of Larky and Hansen is untenable and must be withdrawn.

Claims 14-16:

Claims 14-16 depend from Claim 11 and are patentable over Larky and Hansen for at least the foregoing reasons with respect to Claim 11. Therefore, it is respectfully submitted that the Examiner’s rejection of Claims 14-16 under 35 U.S.C. 103(a) in view of Larky is untenable and must be withdrawn.

Claim 24:

Claim 24 is patentable over Larky and Hansen for at least the same reasons given above with respect to Claim 1. Therefore, it is respectfully submitted that the Examiner's rejection of Claim 24 under 35 U.S.C. 103(a) in view of Larky and Hansen is untenable and must be withdrawn.

Claims 25, 27-33 and 35-40:

Claims 25, 27-32 and 35-40 depend from Claim 24 (directly or indirectly) and are patentable over Larky and Hansen for at least the foregoing reasons with respect to Claim 24. Therefore, it is respectfully submitted that the Examiner's rejection of Claims 25, 27-33 and 35-40 under 35 U.S.C. 103(a) in view of Larky is untenable and must be withdrawn.

Claim 41:

Claim 41 is patentable over Larky and Hansen for at least the same reasons given above with respect to Claim 1. Therefore, it is respectfully submitted that the Examiner's rejection of Claim 41 under 35 U.S.C. 103(a) in view of Larky and Hansen is untenable and must be withdrawn.

Claims 42 and 44-48:

Claims 42, and 44-48 depend from Claim 41 (directly or indirectly) and are patentable over Larky and Hansen for at least the foregoing reasons with respect to Claim 41. Therefore, it is respectfully submitted that the Examiner's rejection of Claims 42, and 44-48 under 35 U.S.C. 103(a) in view of Larky, is untenable and must be withdrawn.

Claim 49:

Claim 49 is patentable over Larky and Hansen for at least the same reasons given above with respect to Claim 1. Therefore, it is respectfully submitted that the Examiner's rejection of Claim 49 under 35 U.S.C. 102(e) in view of Larky and Hansen is untenable and must be withdrawn.

Claims 50-53 and 55-59:

Claims 50-53 and 55-59 depend from Claim 49 (directly or indirectly) and are patentable over Larky and Hansen for at least the foregoing reasons with respect to Claim 49. Therefore, it is respectfully submitted that the Examiner's rejection of Claims 51-53 and 55-59 under 35 U.S.C. 103(a) in view of Larky and Hansen, is untenable and must be withdrawn.

WHEREFORE, each and every objection and rejection of the Office Action of October 6, 2004 having been fully addressed and overcome herein, it is respectfully submitted that this Ap-

plication, including now-pending Claims 1-4, 6-9, 11, 14-16, 24-25, 27-33, 35-42, 44-53 and 55-59, is now in a condition for Allowance. An early Notice of Allowance thereof is therefore earnestly solicited by the Applicants.

I hereby certify that this correspondence is being deposited with the United States Postal Service as Express Mail in an envelope addressed to: Commissioner for Patents, Box 1450, Alexandria, VA 22313-1450, on 4/6/2005.



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04/06/05

Date of Signature

Respectfully submitted,



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4/6/05